CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 85-41

WASTE DISCHARGE REQUIREMENTS FOR:

BURMAH - CASTROL INCORPORATED
RICHMOND
CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter Board), finds that:

1. Burmah - Castrol Incorporated, formerly Bray Oil Company, hereinafter called the discharger, owns a 4.9 acre site in Richmond, located at 801 Wharf Street, (see Site Map, Attachment A). The discharger currently receives and stores petroleum lubricants which are blended, packaged and transported off-site by barge, rail or truck.

2. The discharger has submitted a technical report, ground water protection study and remedial action plan dated November 29, 1984. This report includes results of a soil and ground water site investigation, a review of alternative remedial action plans, and a proposed remedial strategy.

3. The site investigations found soil and shallow ground water polluted at various locations with oil and volatile organic compounds. Volatile organics were found in trace amounts at the 42 foot depth. This pollution was apparently the result of spillage and/or improper oil and chemical handling practices by the former owners and reported by Burmah-Castrol. Site investigations also revealed that the upper 15 feet of fill is a heterogenous zone of sandy-gravelly material combined with silty-sandy clay. Underlying this shallow heterogenous zone is bay mud to an undetermined depth. Potentially usable ground water is believed to exist underneath the bay mud starting at approximately the 100 foot depth. The discharger has generally defined the areas of contamination but has not completely determined the degree of potential migration of pollutants vertically and laterally at the various locations within the facility boundaries. The discharger has reported that shallow groundwater polluted with volatile organics is confined and not a threat to migrate laterally to the bay or vertically to the approximate 100 foot deep aquifer.

The discharger has proposed to continue to monitor existing wells to attempt to verify the confined nature of the pollution.

4. The remedial action plan proposed by the discharger consists of the following:

   a. The control and cleanup of localized polluted groundwater containing oil and volatile organics at locations BC-3 and BC-8 will be accomplished through the pumping of extraction wells. An onsite oil-water separator will treat the extracted groundwater and this effluent will be discharged to Santa Fe Channel. The Board adopted a separate National Pollutant Discharge Elimination System (NPDES) Permit for the discharge of effluent from the oil-water separator.

   b. Volatile organic pollution found at other locations on the site will be sampled to determine concentration changes over time of pollutants in the monitoring wells.

5. The Board finds that the control and cleanup at locations BC-3 and BC-8, as discussed in Finding 4.a., is acceptable and will reduce the threat to beneficial uses by stopping the observable oil discharge to the channel. The shallow groundwater pollution with volatile organics at other locations does not present an immediate threat to Beneficial uses of surface waters or underlying usable groundwater because of the apparent limited migration potential. Additional studies and monitoring are necessary to confirm this condition.

6. The Board adopted a revised Water Quality Control Plan (Basin Plan) for the San Francisco Bay Region on July 21, 1982. The Basin Plan contains water quality objectives for Santa Fe Channel and San Francisco Bay. The Basin Plan also contains water quality objectives for groundwater.

7. The beneficial uses of Santa Fe Channel and San Francisco Bay include:

   a. Recreation
   b. Fish migration and habitat
   c. Habitat and resting for waterfowl and migratory birds
   d. Industrial water supply
   e. Esthetic enjoyment

8. The existing and potential beneficial uses of the groundwater underlying the facility include:

   a. Industrial process water supply
   b. Industrial service supply
   c. Domestic supply
   d. Agricultural supply

9. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

10. This project constitutes a minor modification to land and such actively is thereby exempt from the provisions of the California Environmental Quality Act (CEQA) in accordance with Section 15304 of the Resources Agency Guidelines.

11. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, that Burmah - Castrol Incorporated, Richmond, in order to meet the provisions contained in Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. Prohibitions

   1. The discharge of wastes or hazardous materials in a manner which will degrade the beneficial uses of the groundwaters of the State is prohibited.

   2. The discharge of wastes or hazardous materials through subsurface transport to surface waters in quantities or concentrations which will degrade beneficial uses is prohibited.

   3. Activities associated with the subsurface investigation and clean-up which will cause further migration of the pollution is prohibited.

4. Bypassing of wastewater from the wastewater treatment system to waters of the State is prohibited. If bypassing should occur, the discharger shall notify this Board's Executive Officer as soon as possible.

B. Specifications

1. The treatment or disposal of waste shall not create a nuisance as defined in Section 13050(m) of the California Water Code.

2. Groundwater extracted for treatment shall receive the treatment specified in the NPDES permit prior to discharge.

3. The vertical and lateral extent of pollution shall be defined at all times. Should monitoring results show evidence of plume migration, additional plume characterization shall be required.

4. The continiuty and competency of the geologic materials under the site shall be defined, including the depth of bay mud overlying the nearest water supply aquifer.

C. Provisions

1. The discharger shall commence with the approved remedial action plan measures as contained in Finding 4.a. immediately upon adoption of this Order.

2. The discharger shall report to the Board annually, with the first report due March 14,1986, on effectiveness of the ground water cleanup program at BC-3 and BC-8. The report shall discuss the treatment of the extracted ground water, the status of the underground waste plume migration and the expected results of future extractions.

3. The discharger shall submit quarterly piezometric surface maps of the ground water as part of studies to verify the volatile organic chemical migration potential.

4. The discharger shall submit to the Board technical reports on self-monitoring work performed according to a program approved by the Board's Executive Officer.

5. In order to comply with Specification B.3., based upon conditions known to the Board at the time of adoption of this Order, the discharger shall accomplish the following:

   a. Define the vertical extent of pollution in the groundwater at location BC-14a, with a report submitted to the Board by July 1, 1985.

   b. Define the lateral extent of pollution in the groundwater and determine the migration potential of the pollution at location BC-6, with a report submitted to the Board by September 1, 1985.

6. In order to comply with Specification B.4., the discharger shall determine the depth of bay mud overlying the nearest potential water supply aquifer at the facility and report to the Board by July 1, 1985.

7. All samples shall be analyzed by laboratories using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.

8. The discharger shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:

   a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept.

   b. Access to copy any records required to be kept under terms and conditions of this Order.

   c. Inspection of any monitoring equipment or methods required by this Order.

   d. Sampling of any groundwater or soil which is accessible, or may become accessible as part of any investigation or remedial action program, to the discharger.

9. The discharger shall file a report on any material changes in the nature, quantity, or transport of polluted groundwater associated with the pollution described in this Order.

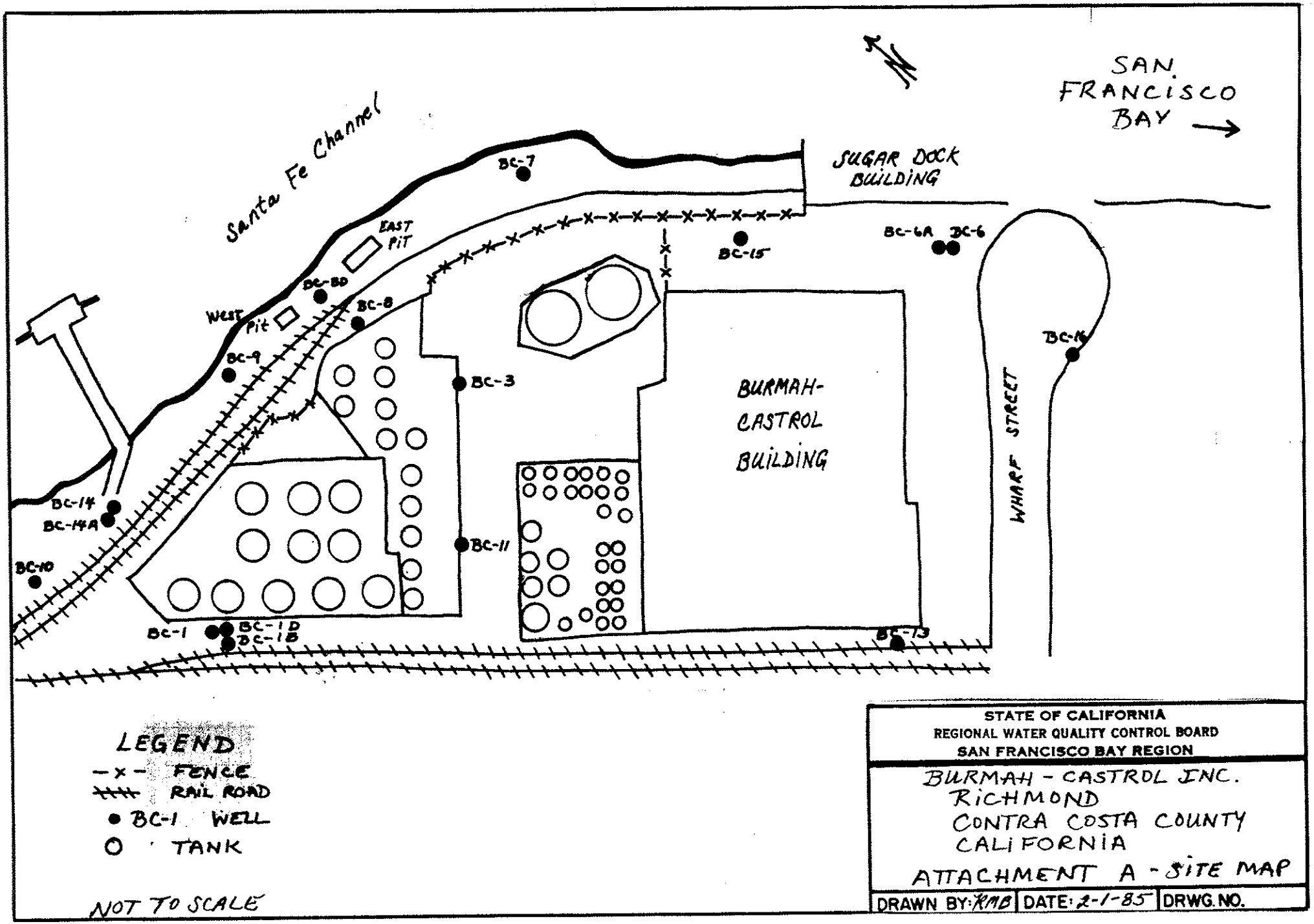
10. The discharger shall maintain in good working order and operate, as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.

11. The Board will review this Order periodically and may revise the requirements when necessary.

I, Roger B. James, Executive Officer, do hereby certify the foreoging is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on April 30, 1985.

ROGER B. JAMES
Executive Officer

Attachments:
A. Site Map


SAN FRANCISCO BAY
Santa Fe Channel
SUGAR DOCK BUILDING
EAST PIT
WEST PIT
BC-7
BC-8D
BC-8
BC-9
BC-15
BC-6A
BC-6
BC-16
BC-3
BC-11
BC-14
BC-14A
BC-10
BC-1
BC-1D
BC-1B
BC-13
BURMAH-CASTROL BUILDING
WHARF STREET
LEGEND
-x- FENCE
RAIL ROAD
BC-1 WELL
TANK
NOT TO SCALE
STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
BURMAH - CASTROL INC.
RICHMOND
CONTRA COSTA COUNTY
CALIFORNIA
ATTACHMENT A - SITE MAP
DRAWN BY: RMB
DATE: 2-1-85
DRWG. NO.

SELF-MONITORING PROGRAM
PART B

I. DESCRIPTION OF SAMPLING STATIONS AND SCHEDULE OF SAMPLING, ANALYSIS, AND OBSERVATIONS

A. Description of Sampling Stations (Figure 1)

1.

BC-1	Ground water monitoring wells
BC-1B	
BC-6	
BC-6A	
BC-9	
BC-10	
BC-11	
BC-13	
BC-14	
BC-14B	
BC-15	
BC-16	
BC-17	

2.

BC-3	Ground water extraction wells used for hydraulic containment and control of oil seepage
BC-8	

3.

Seep 1	Shoreline seeps
Seep 2	
Seep 5	
Seep 6	
Seep 7	

B. Schedule of Sampling and Analysis

Ground water monitoring wells shall be sampled according to the schedule in Table 1. Shoreline seeps shall be sampled when flow rate is equal to or greater than 1 liter per minute.

C. Schedule of Observations

Seeps 1, 2, 5, 6, 7:

1. weekly during the rainy season (November through April)
2. twice a month during dry season (May through October)

II. **MISCELLANEOUS REPORTING REQUIREMENTS**

A. Analytic field data of water samples must include pH, electrical conductivity, temperature, and water level, and shall be taken at the beginning and at the end of well purging. The field measurements shall be included in reports.

B. Date and time of sampling, method of field sampling and treatment, method of sample preservation and volume of reagents used, copies of chain-of-custody forms, and name(s) of sampler shall be furnished in reports and cross-indexed in the text, as necessary.

C. Date and time samples are delivered to the laboratory, constituents analyzed, type of analytic method(s) used, results of analyses, detection limits for each analysis, and field methods for quality assurance/quality control shall be presented. Data shall be shown in tabular form and properly cross-indexed in the text for clear identification.

D. Description of shoreline seep observations shall include the date and time of observation, the height and time of the previous high tide, the approximate amount of flow from the seep, color and odor of liquid, if detectable, and presence of sheen, if any.

E. Annual ground water monitoring reports shall include ground water elevation contour maps.

III. **Modifications to PART A**

The Self-Monitoring Program PART A (attached) is modified as follows:

A. DELETE SECTIONS:

Section B, 1st paragraph: delete "(See Appendix E, attached)"

Section E.1.f 1) and E.1.f 2), E.4.a and E.4.d

Section F.1.d and F.2.

Section G.4.b

Section G.4.d: delete the sentence reading..."The report format will be prepared using examples shown in Appendix B."

Section G.4.e and g

Section G.5., last sentence: delete the words "using the example shown in Appendix C (attached)."

B. MODIFY SECTIONS:

Section D.: is modified to read..."The discharger is required to perform sampling and analysis according to the schedule in Part B."

Section E.5.b: is modified to read..."Weather condition: amount of annual rainfall to date."

Section G.4., 1st sentence: is modified to read ..."Written monitoring reports shall be submitted to the Regional Board by April 15th and October 15th of each calendar year."

I, STEVEN R. RITCHIE, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in the Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with Waste Discharge Requirements established in Order No. 85-41.

2. Is effective on the date shown below.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer.

STEVEN R. RITCHIE
Executive Officer

Effective Date: 4/24/90

Attachments: **Figure 1**, Monitoring Well and Seep location map
Table 1, Schedule for Sampling, Measurements, and Analysis

TABLE 1

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station		BC-1	BC-1B	BC-3	BC-6	BC-6A	BC-8	BC-9	BC-10	BC-11	BC-13	BC-14	
TYPE OF SAMPLE		GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	
Flow Rate (mgd)													
BOD, 5-day, 20°C, or COD (mg/l & kg/day)													
Chlorine Residual & Dosage (mg/l & kg/day)													
Settleable Matter (ml/l-hr. & cu. ft./day)													
Total Suspended Matter (mg/l & kg/day)													
Oil and Grease (mg/l EPA # 413.2)		A	S	S			S	S		S	S	A	
Coliform (Total or Fecal) (MPN/100 ml) per req't													
Fish Tox'y 96-hr. % Surv'l in undiluted waste													
Ammonia Nitrogen (mg/l & kg/day)													
Nitrate Nitrogen (mg/l & kg/day)													
Nitrite Nitrogen (mg/l & kg/day)													
Total Organic Nitrogen (mg/l & kg/day)													
Total Phosphate (mg/l & kg/day)													
Turbidity (Jackson Turbidity Units)													
pH (units)		S	S	S	S	S	S	S	S	S	S	S	
Dissolved Oxygen (mg/l and % Saturation)													
Temperature (°C)		S	S	S	S	S	S	S	S	S	S	S	
Apparent Color (color units)													
Secchi Disc (inches)													
Sulfides (if DO<5.0 mg/l) Total & Dissolved (mg/l)													
Arsenic (mg/l & kg/day)													
Cadmium (mg/l & kg/day)													
Chromium, Total (mg/l & kg/day)													
Copper (mg/l & kg/day)													
Cyanide (mg/l & kg/day)													
Silver (mg/l & kg/day)													
Lead (mg/l & kg/day)													

TABLE 1 (continued)

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station		BC-1	BC-1B	BC-3	BC-6	BC-6A	BC-8	BC-9	BC-10	BC-11	BC-13	BC-14	
TYPE OF SAMPLE		GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	
Mercury (mg/l & kg/day)													
Nickel (mg/l & kg/day)													
Zinc (mg/l & kg/day)													
Phenolic Compounds (mg/l & kg/day)													
All Applicable Standard Observations													
Bottom Sediment Analyses and Observations													
Total Ident. Chlor. Hydrocarbons (mg/l & kg/day)													
Specific Conductance		S	S	S	S	S	S	S	S	S	S	S	
VOC's EPA # 8010			S	A		S	A	A	S	A	A		
VOC's EPA # 8020			S			S							
VOC's EPA # 8240		S			S							S	

LEGEND FOR TABLE

SAMPLE TYPE

GW = ground water
G = grab

PARAMETER

VOC's = volatile organic compounds

SAMPLING FREQUENCY

S = semi-annually
A = annually
# = when flow is $\geq$ 1 liter/minute

TABLE 1
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	BC-14B	BC-15	BC-16	BC-17		S-1	S-2	S-5	S-6	S-7		
TYPE OF SAMPLE	GW	GW	GW	GW		G	G	G	G	G		
Flow Rate (mgd)												
BOD, 5-day, 20°C, or COD (mg/l & kg/day)												
Chlorine Residual & Dosage (mg/l & kg/day)												
Settleable Matter (ml/l-hr. & cu. ft./day)												
Total Suspended Matter (mg/l & kg/day)												
Oil and Grease (mg/l EPA # 413.2)				A		#	#	#	#	#		
Coliform (Total or Fecal) (MPN/100 ml) per req't												
Fish Tox'y 96-hr. % Surv'l in undiluted waste												
Ammonia Nitrogen (mg/l & kg/day)												
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Total Organic Nitrogen (mg/l & kg/day)												
Total Phosphate (mg/l & kg/day)												
Turbidity (Jackson Turbidity Units)												
pH (units)	S	S	S	S								
Dissolved Oxygen (mg/l and % Saturation)												
Temperature (°C)	S	S	S	S								
Apparent Color (color units)												
Secchi Disc (inches)												
Sulfides (if DO<5.0 mg/l) Total & Dissolved (mg/l)												
Arsenic (mg/l & kg/day)												
Cadmium (mg/l & kg/day)												
Chromium, Total (mg/l & kg/day)												
Copper (mg/l & kg/day)												
Cyanide (mg/l & kg/day)												
Silver (mg/l & kg/day)												
Lead (mg/l & kg/day)												

TABLE 1 (continued)

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station		BC-14B	BC-15	BC-16	BC-17		S-1	S-2	S-5	S-6	S-7		
TYPE OF SAMPLE		GW	GW	GW	GW		G	G	G	G	G		
Mercury (mg/l & kg/day)													
Nickel (mg/l & kg/day)													
Zinc (mg/l & kg/day)													
Phenolic Compounds (mg/l & kg/day)													
All Applicable Standard Observations							W/B	W/B	W/B	W/B	W/B		
Bottom Sediment Analyses and Observations													
Total Ident. Chlor. Hydrocarbons (mg/l & kg/day)													
Specific Conductance		S	S	S	S								
VOC s EPA # 8010		S	S	A	S								
VOC s EPA # 8020		S											
VOC's EPA # 8240							#	#	#	#	#		

LEGEND FOR TABLE

SAMPLE TYPE

GW = ground water
G = grab

PARAMETER

VOC's = volatile organic compounds

SAMPLING FREQUENCY

S = semi-annually
A = annually
# = when flow is $\geq$ 1 liter/minute
W = weekly during the rainy season (November through April)
B = biweekly during the dry season (May through October)

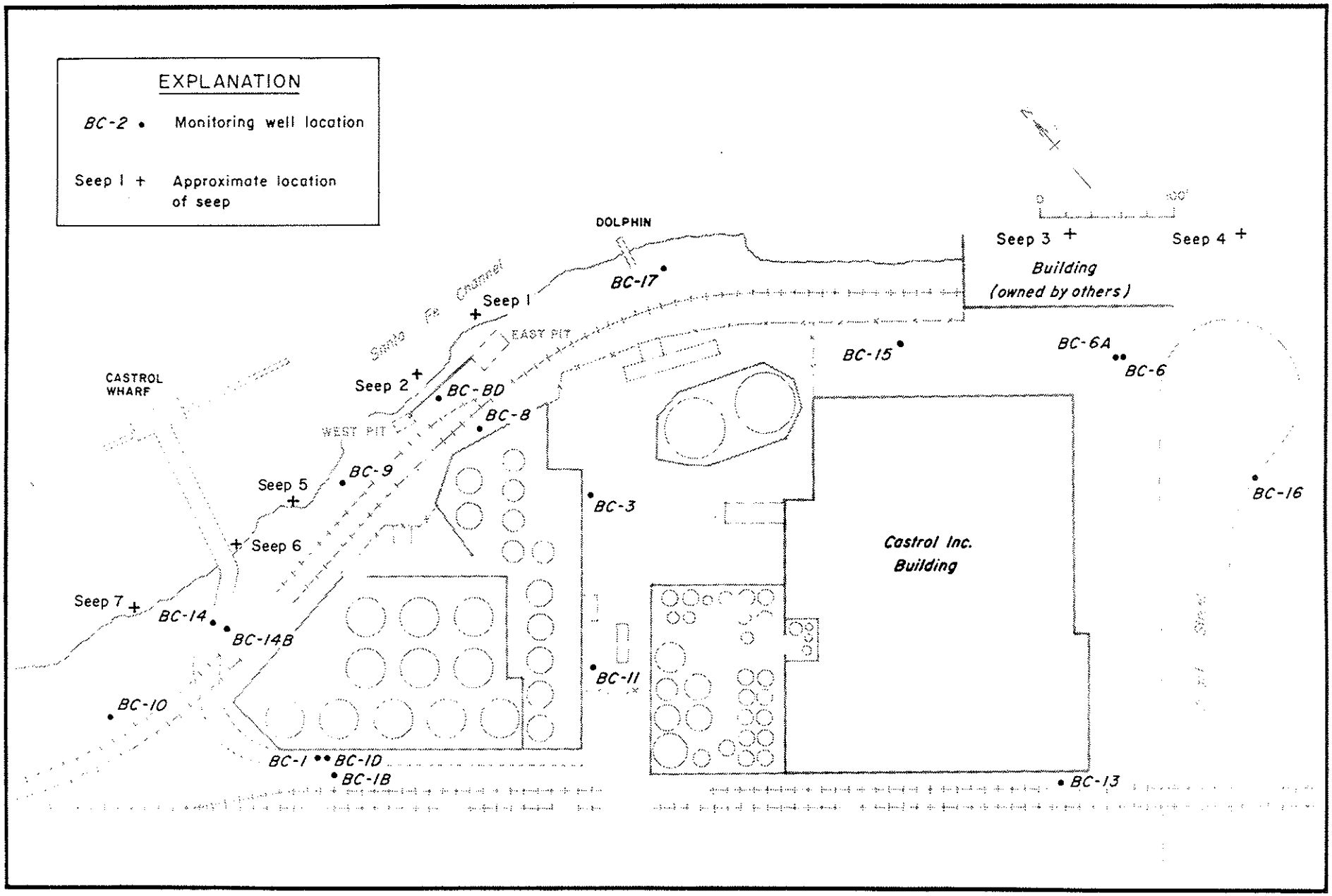

Figure 1 Monitoring Well and Shoreline Seep Locations